

REMARKS/ARGUMENTS

This Amendment is submitted in reply to the Office Action dated July 24, 2007, and within the three month period for reply extending to October 24, 2007.

Claims 1-9, 12-13, and 17-19 are currently amended.

5 Claims 10-11, 14, 16, and 20-27 are cancelled.

Claims 1-9, 12-13, 15, and 17-19 remain pending.

Drawings

10 The Office has objected to the original as-filed drawings, and has indicated that formal drawings will be required when the application is allowed. However, the Applicant filed formal drawings on July 19, 2004, in response to the Notice to File Corrected Application Papers. The Applicant's filing of formal drawings on July 19, 2004, is also confirmed by Private Pair. Therefore, the Office is requested to withdraw the objection to the drawings and acknowledge receipt of the formal drawings filed July 19,
15 2004.

Rejections under 35 U.S.C. 103

20 Claims 1-3, 7, 11-13, 17, 20, and 22-27 were rejected under 35 U.S.C. 103(a) as being unpatentable over Black et al. ("Black" hereafter) (U.S. Patent No. 7,103,602) in view of Col et al. ("Col" hereafter) (U.S. Patent No. 6,330,657). These rejections are traversed.

25 In applying the combination of Black and Col to reject claim 1, the Office has asserted that Black (column 2, lines 14-30) teaches a processor capable of executing a secure hash algorithm (SHA), as recited in the preamble of claim 1. The Office has admitted that Black does not teach any other feature of claim 1. Also, the Office has

asserted that Col (column 14, lines 1-20) teaches each and every feature of claim 1 other than the preamble.

Claim 1 has been amended to recite that the first execution unit is defined to perform a schedule computation on a data block of the message. Claim 1 has also been amended to recite that the first execution unit is defined to communicate a partial result of the schedule computation on the data block to the second execution unit when the partial result becomes available and prior to completion of the schedule computation on the data block. Claim 1 has been further amended to recite that the second execution unit is defined to perform a compression function on the partial result received from the first execution unit in parallel with the first execution unit continuing the schedule computation on the data block.

Col (column 14, lines 7-14) teaches that two parallel micro instructions are distributed to the four execute stages 412-418, such that one of the micro instructions is routed to the integer execute stage 412, the floating point execute stage 414, and the first SIMD execute stage via bus 422, and such that the other micro instruction is routed to the integer execute stage 412 and to the second SIMD execute stage 418 via bus 424. Col (Figure 1) teaches that the output of each execution stage (integer execute 412, FP execute 414, SIMD execute #1 416, and SIMD execute #2 418) is transmitted only to a store stage 420, which stores results to memory.

In view of the foregoing, it should be appreciated that Col does not teach any communication of instructions, or results from processing of instructions, between execution stages (412, 414, 416, 418), i.e., from one execution stage to another. Therefore, Col does not teach a first execution unit within a core defined to communicate a partial result to a second execution unit in the core, as recited in amended claim 1. Moreover, Col does not teach a first execution unit defined to communicate a partial

result of a schedule computation performed on a data block by the first execution unit to a second execution unit when the partial result become available and prior to completion of the schedule computation on the data block by the first execution unit, as recited in amended claim 1. Additionally, Col does not teach a second execution unit defined to

5 perform a compression function on the partial result received from the first execution unit in parallel with the first execution unit continuing the schedule computation on the data block. Additionally, with regard to amended claim 1, the Applicant submits that the combination of Black and Col is silent with regard to a first execution unit defined to perform a schedule computation on a data block of a message, and a second execution

10 unit defined to perform a compression function on a partial result of the schedule computation received from the first execution unit in parallel with the first execution unit continuing the schedule computation on the data block.

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180

15 USPQ 580 (CCPA 1974). Therefore, the Applicant submits that amended claim 1 is not rendered prima facie obvious by the combination of Black and Col. The Office is requested to withdraw the rejection of amended claim 1 under 35 U.S.C. 103.

Moreover, the Applicant submits that the Office's statement that "it would have been obvious to a person of ordinary skill in the art to use Col's pairing of micro

20 instructions in the instruction queue with Black's system for data management, because it offers the advantage of being efficient in the execution of instructions," does not provide articulated reasoning with rational underpinning to support the Office's assertion that the microprocessor pipeline of Col can be modified to include communication of a partial result from a first execution unit to a second execution unit in the microprocessor

25 pipeline, and that such a modified microprocessor pipeline of Col can be used with

Black's system for data management to execute a secure hash algorithm (SHA) computation on a message.

Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational
5 underpinning to support the legal conclusion of obviousness. *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), and *KSR*, 550 U.S. at _____, 82 USPQ2d at 1396. Therefore, the Applicant submits that amended claim 1 is not rendered prima facie obvious by the combination of Black and Col. The Office is requested to withdraw the rejection of amended claim 1 under 35 U.S.C. 103.

10 Each of independent claims 7, 12, and 17 have been amended to recite features similar to those argued above with regard to amended claim 1. Therefore, the Applicant submits that the arguments presented above with regard to amended claim 1 are equally applicable to each of amended claims 7, 12, and 17. Therefore, the Applicant submits that each of amended claims 7, 12, and 17 is not rendered prima facie obvious by the
15 combination of Black and Col. The Office is requested to withdraw the rejection of amended claims 7, 12, and 17 under 35 U.S.C. 103.

Because a dependent claim incorporates each and every feature of its independent claim, the dependent claim is patentable for at least the reasons provided for its independent claim. Therefore, each of dependent claims 2-3 and 13 is patentable for at
20 least the same reasons as its independent claim. Thus, the Applicant requests the Office to withdraw the rejections of claims 2-3 and 13, under 35 U.S.C. 103. Also, the Office is requested to note that claims 11, 20, and 22-27 have been cancelled.

Claims 4, 5, 8, and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Black and Col, in view of Lilly (U.S. Patent No. 6,829,355). These rejections are traversed.

Because a dependent claim incorporates each and every feature of its independent claim, the dependent claim is patentable for at least the reasons provided for its independent claim. Therefore, each of dependent claims 4, 5, and 8 is patentable for at least the same reasons as its independent claim. Thus, the Applicant requests the Office to withdraw the rejections of claims 4, 5, and 8, under 35 U.S.C. 103. Also, the Office is requested to note that claim 14 has been cancelled.

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Claim 6 was rejected under 35 U.S.C. 103(a) as being unpatentable over Black and Col, in view of Tague et al. ("Tague" hereafter) (U.S. Patent No. 4,799,181). This rejection is traversed.

Because a dependent claim incorporates each and every feature of its independent claim, the dependent claim is patentable for at least the reasons provided for its independent claim. Therefore, dependent claim 6 is patentable for at least the same reasons as independent claim 1. Thus, the Applicant requests the Office to withdraw the rejection of claim 6, under 35 U.S.C. 103.

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Claims 9, 10, 15, 16, and 21 were rejected under 35 U.S.C. 103(a) as being unpatentable over Black, Col, and Lilly, in view of Gibson (U.S. Patent No. 5,155,820). These rejections are traversed.

Because a dependent claim incorporates each and every feature of its independent claim, the dependent claim is patentable for at least the reasons provided for its independent claim. Therefore, each of dependent claims 9 and 15 is patentable for at least

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Because a dependent claim incorporates each and every feature of its independent claim, the dependent claim is patentable for at least the reasons provided for its independent claim. Therefore, each of dependent claims 18 and 19 is patentable for at least the same reasons as its independent claim. Thus, the Applicant requests the Office to withdraw the rejections of claims 18 and 19, under 35 U.S.C. 103.

20 Respectfully submitted,
MARTINE PENILLA & GENCARELLA, LLP

25. Kenneth D. Wright
Reg. No. 53,795

30 **Customer Number 32,291**